

1 The opinion in support of the decision being entered today was *not*
2 written for publication and is *not* binding precedent of the Board.
3
4

5 UNITED STATES PATENT AND TRADEMARK OFFICE
6

7
8 BEFORE THE BOARD OF PATENT APPEALS
9 AND INTERFERENCES
10

11
12 *Ex parte* GREGORY A. HOLBROOK, GRAHAM R. BROOKES, and
13 DANIEL L. NORDMEYER
14

15
16 Appeal 2007-0818
17 Application 10/601,448
18 Technology Center 3600
19

20
21 Decided: April 10, 2007
22

23
24 Before STUART S. LEVY, ROBERT E. NAPPI, and LINDA E. HORNER,
25 *Administrative Patent Judges*.
26

27 NAPPI, *Administrative Patent Judge*.
28
29

30 DECISION ON APPEAL
31

32 This is a decision on appeal under 35 U.S.C. § 6(b) (2002) of the final
33 rejection of claims 24 through 46. For the reasons stated *infra* we will not sustain
34 the Examiner's rejection of these claims.
35

INVENTION

3 The invention is directed to a method of determining the appropriate
4 conditions for leveling a vehicle using an air adjustable suspension system. See
5 pages 3 and 4 of Appellants' Specification. Claim 24 representative of the
6 invention and reproduced below:

7 24. A method of performing a leveling action on a vehicle having a height
8 adjustable air suspension system and undergoing a vehicle acceleration, said
9 method comprising steps of:

10 a) initiating a leveling action adjusting said suspension system toward a pre-
11 determined height condition of the vehicle;

12 b) discontinuing said leveling action upon the vehicle acceleration exceeding
13 a first pre-determined acceleration threshold prior to said suspension system
14 achieving said pre-determined height condition;

15 c) waiting until the vehicle acceleration decreases below a second pre-
16 determined acceleration threshold that is less than said first pre-determined
17 threshold; and,

18 d) continuing said leveling action adjusting said suspension system toward
19 said pre-determined height condition.

REFERENCES

The references relied upon by the Examiner are:

Karnopp US 5,346,242 Sep. 13, 1994
Raad US 5,430,647 Jul. 4, 1995
Shono US 6,298,292 B1 Oct. 2, 2001

REJECTIONS AT ISSUE

32 Claims 24 through 27, and 29 through 46 stand rejected under 35 U.S.C.
33 § 103 (a) as being unpatentable over Shono in view of Raad. The Examiner's
34 rejection is set forth on pages 2 through 4 of the Final Office action mailed March

1 9, 2006. Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable
2 over Shono in view of Raad and Karnopp. The Examiner's rejection is set forth on
3 page 4 of the Final Office action mailed March 9, 2006. Throughout the opinion
4 we make reference to the Brief and Reply Brief (received July 8, 2006 and
5 November 14, 2006 respectively), and the Answer (mailed September 14, 2006)
6 for the respective details thereof.

7 **ISSUES**

8 Appellants contend that the Examiner's rejection of independent claims 24,
9 33, and 44 under 35 U.S.C. § 103(a) is in error. Appellants assert that Shono
10 teaches that when vehicle acceleration is above a value G2, the leveling operation
11 is discontinued. However, Appellants argue that Shono does not teach a second
12 lower threshold value for determining that leveling should be resumed. (Br. 6.)

13 The Examiner asserts that the rejection is proper. The Examiner, on page 3
14 of the Answer, states that selecting a second lower acceleration value would be
15 obvious as it involves "discovering the optimum or workable ranges." See page 3
16 of the Answer. Further, on page 4 of the Answer, the Examiner equates Shono's
17 first acceleration threshold value (the lower value G1) with Appellants' claimed
18 "second pre-determined threshold" and Shono's second acceleration threshold
19 value (the higher value G2) with Appellants' claimed "first pre-determined
20 threshold."

21 Thus, the issue before us is whether Shono teaches or suggests use of a
22 second lower threshold acceleration value for determining that leveling should be
23 resumed.

FINDINGS OF FACT

2 Shono teaches a leveling system for a vehicle where there are four actuators
3 which adjust the height of the vehicle to achieve a target height. The system also
4 monitors acceleration of the vehicle. (Shono, col. 2, ll. 54-67). If the vehicle
5 acceleration is below a threshold value G1 leveling operations can be initiated and
6 performed, this condition is shown in the flow charts as SF=0. (Shono, col. 6, ll.
7 39-60). If the vehicle acceleration is above the first threshold value G1 but below
8 (or equal to) the threshold value G2, leveling will not be initiated¹ but if a leveling
9 operation is in progress it will continue. This condition is shown in the flow charts
10 as SF=1. (Shono, col. 10, ll. 35-57). Finally, if the vehicle acceleration is above
11 the threshold value G2, operation of the leveling system is suspended. This is
12 shown in the flow charts as SF=2. (Shono, col. 10, l. 68-col. 11, l. 11). It is not
13 until the vehicle acceleration is at or below the threshold value G2 that leveling is
14 resumed. (Shono, col. 11, ll. 19-22). Leveling operation is stopped when the
15 vehicle reaches the target vehicle height. (Shono, col. 9, l. 51-col. 10, l. 15).
16 Shono is primarily concerned with hydraulic height adjustment actuators but is also
17 applicable to pneumatic height adjustment actuators. (Shono, col. 15, ll. 62-65).

18 Raad teaches a system for controlling vehicle ride height using pneumatic
19 actuators. Raad's control system monitors acceleration and uses the values to
20 make vehicle roll corrections to the determined ride height. If the sensed roll is
21 greater than a threshold value, the system is disabled until the measured roll is

¹ We note in alternative embodiments leveling will be initiated if the vehicle acceleration is greater than G1 and the difference between target and actual vehicle height is greater than a threshold. See second embodiment depicted in figure 7, and described in columns 12 and 13. These embodiments are not relied upon by the Examiner and do not relate to the issue in contention.

1 lower than a threshold value for a period of time. (Raad, col. 6, ll. 3-20). Raad
2 does not teach use of a second lower threshold of roll to determine when to resume
3 operation, but rather uses the same threshold and a time delay as a condition
4 precedent for resuming operation.

5 Karnopp teaches an active suspension for a vehicle. The system makes use
6 of active and passive dampers to improve the ride dynamics of the vehicle.
7 (Karnopp, col. 2, ll. 57-65). We do not find that Karnopp teaches or suggests
8 disabling the system when the vehicle acceleration is above a threshold value and
9 then resuming operation when the vehicle acceleration is at or below a second
10 lower value.

11 ANALYSIS

12 Appellants' claim 24 recites "b) discontinuing said leveling action upon the
13 vehicle acceleration exceeding a first pre-determined acceleration threshold prior
14 to said suspension system achieving said pre-determined height condition; c)
15 waiting until the vehicle acceleration decreases below a second pre-determined
16 acceleration threshold that is less than said first pre-determined threshold; and, d)
17 continuing said leveling action adjusting said suspension system toward said pre-
18 determined height condition." Claim 24 does not directly recite that step d),
19 continuing said leveling action, is in response to the vehicle acceleration
20 decreasing below a second pre-determined value. However, it is clear, interpreting
21 the claim term "continuing" of step d) in light of the Specification, that step d) is
22 performed in order, so that step d), the step of continuing said level action, is
23 performed after step c), the step of "waiting until the vehicle acceleration decreases
24 below a second pre-determined acceleration threshold." Thus, the scope of claim
25 24 includes that vehicle leveling is stopped when the measured vehicle acceleration
26 is above a first threshold value and is not resumed until the vehicle acceleration is

1 below a second predetermined threshold, where the second threshold is less than
2 the first threshold. Independent claims 33 and 44 contain similar limitations.

3 As discussed *supra*, we do not find that Shono teaches the claimed second
4 threshold. Contrary to the Examiner's assertions, Shono teaches that the leveling
5 is suspended when the acceleration is above the value G2 and resumed when the
6 acceleration is equal to or less the value of G2. Nor do we find that adding a
7 second threshold is a question of determining optimum values. The selection of a
8 value for the threshold G2 might be a determination of an optimum value.
9 However, in this case, the difference between the prior art and the invention is
10 more than the value used for G2; it is establishing two threshold values to make a
11 determination where one is used in the prior art. Further, as discussed *supra* we do
12 not find that Raad teaches using a second threshold value to determine if leveling
13 is to be resumed. Thus, we do not find that the combination of Shono and Raad
14 teach all of the limitations of the independent claims 24, 33, and 44.

15

16 CONCLUSION

17 We consider the Examiner's rejection of 24 through 27, and 29 through 46
18 under 35 U.S.C. § 103(a) to be in error as we do not find that the combination of
19 Shono in view of Raad teaches or suggests the limitations in independent claims
20 24, 33, and 44. The Examiner has not asserted, nor do we find that Karnopp, the
21 reference applied against dependent claim 28, makes up for the noted deficiencies
22 in the rejection of independent claims 24, 33, and 44. Accordingly we will not
23 sustain the Examiner's rejection of claims 35 U.S.C. § 103 (a) of claims 24 through
24 46.

ORDER

2 For the forgoing reasons, we will not sustain the Examiner's rejections,
3 under 35 U.S.C. § 103. The decision of the Examiner is reversed.

REVERSED

hh

21 *Patent Counsel*
22 *Bridgestone Americas Holding, Inc.*
23 *1200 Firestone Parkway*
24 *Akron, OH 44317-0001*